DIY Height Gauge

Height Adjuster

This jig will enable you to make precise height adjustments on your table saw blade or router table bits.

There is often a need to adjust the height of a saw blade or router bit accurately. Using a ruler or small square is imprecise, while specialist devices are somewhat expensive. It seemed to me that it should be possible to use a relatively inexpensive dial indicator with a suitable mounting to give a precise height indication directly as the blade or bit is raised or lowered. The jig that I made, which is the result of several attempts, is easy to use and accurate to 0.001".

The dial I used has a ¾" long by ⅜" diameter extension housing below the dial. If you use a dial of a different size you will have to change the dimensions accordingly.

Make the Support Block

- Cut the wooden support block to size.
- Drill and countersink the hole for the clamping screw in the front of the block, ⅜" from the top and ½" from the right hand side.
- Drill a ⅜" diameter hole 1" deep in the center of the top of the block.
- Use a chisel to cut a 5/16" x 1" slot in the top of the block about ⅛" deep and 1/16" in front of the ⅜" hole. This will receive the zero-adjust ring of the indicator, allowing the extension housing to be fully inserted.
- Saw out the recess for the indicator rod and Plexiglas pad with a bandsaw. This recess is 1" from either side and is 1" wide by 1⅝" deep. The ⅜" hole will now go right through the remaining ¾" of wood at the top. If the Plexiglas is more than ⅜" thick, say ½", the block should be 2½" high and the recess 1¾" deep.
- Make a vertical cut from the right hand side, 2" across the block, so that the clamping screw can tighten on the indicator extension housing.
- Cut the Plexiglas to size and drill a ¼" deep hole in the center of the top, with a diameter slightly larger than the fitting at the end of the indicator rod. On the indicators that I used this fitting was 0.195" in diameter and I used a #8 bit (0.199"), but a 13/64" bit (0.203") would be acceptable.

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Attach the Plexiglas Pad

The support block is now complete and should be tested to ensure that the zero-adjust ring is free to rotate when the extension housing is fully inserted into its hole and that the clamping screw does in fact clamp the extension housing securely.

The next stage, attaching the Plexiglas pad to the end of the indicator rod with epoxy, is the only really critical part of the construction. The pad, which rides on the tips of the saw blade or router bit protects the tips from damage, but is hard enough to prevent the tips from digging in. In order for the device to function accurately when the Plexiglas pad is glued in place, its bottom surface must be coplanar with the flat bottom surface of the block. This can be done with a simple jig, which allows both the wood block and the Plexiglas to be clamped in position while the epoxy is setting. The jig is merely a 3"x 8" piece of ¾" MDF with a 1½" hole, 3" from the end.

Before actually gluing the pad in place, some minor modifications may be necessary. The indicator must register zero when the pad is touching a flat surface. This means that the bottom surface of the pad must be slightly below (0.010") the bottom of the support block when it is not touching anything. In order to check this,

put the indicator into the support block and insert the fitting at the end of the indicator rod into the hole in the top of the pad.

If the bottom of the pad is too far **below** the bottom of the support block, loosen the clamping screw and raise the whole indicator slightly.

If the bottom of the pad is **above** the bottom surface of the support block, note the amount, disassemble the device and remove slightly more than that amount from the bottom of the block with a belt sander or table saw and again ensure that the bottom of the block is flat. Do not cut too much off the bottom of the block as this will restrict the full 1" range of the indicator.

The pad can now be glued in place using the jig. With the jig held in a vice, position the wood block across the jig, midway between the end and the 1½" hole and clamp it on both sides. Prepare the epoxy and coat the inside of the hole in the Plexiglas pad. Put the pad in place and push the indicator rod down into the glue. Clamp the pad in place with two small clamps, one over the end of the MDF and the other through the 1½" hole.

Using the Height Adjuster

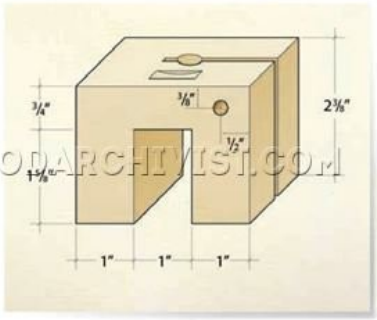
The device is easy to use, but it is extremely sensitive and to get an accurate reading it is essential that the reference surface (i.e. the saw or router table top) be clean and free of dust. Place the device on the reference surface to check the zero setting and reset if necessary. When setting a saw blade, bring one of the teeth to the top center. Place the device over the saw blade or router bit and use the applicable height adjustment mechanism to raise or lower the blade or bit as necessary.

Block with the slot, recess, Plexiglas pad and vertical cut

Adjuster on the jig – front view

Adjuster on the jig – rear view

Setting router bit height



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SUPPLY CHECKLIST

- ❑ Dial indicator busybeetools.com or leevalley.com
- ❑ 2" x 2 ⅜" x 3" close-grained hard wood (maple, walnut, beech)
- ❑ ⅜" x ¾" x 1" Plexiglas or Lexan
- ❑ #8 - 1 ¾" screws
- ❑ Epoxy glue